

What is claimed is:

- 1 1. An apparatus, comprising:  
2 an enclosure having an opening; and  
3 a light-emitting device inside the enclosure;  
4 wherein the light emitted through the opening is only visible to a speaker  
5 when the speaker's mouth is within a sensitivity region of a microphone.
- 1 2. The apparatus recited in claim 1, wherein the enclosure has sloped sides.
- 1 3. The apparatus recited in claim 1, wherein the walls of the enclosure are  
2 coated to absorb light.  
3
- 4 4. The apparatus recited in claim 1, wherein the opening is asymmetrical.
- 1 5. The apparatus recited in claim 1, wherein the enclosure is cylindrical.
- 1 6. The apparatus recited in claim 5, wherein the light-emitting device is  
2 located on the bottom inside the enclosure.
- 1 7. The apparatus recited in claim 6, wherein the opening is located on the  
2 top of the enclosure.
- 1 8. An apparatus, comprising:  
2 an enclosure having an opening to a cavity;  
3 a device to emit light at the bottom of the cavity; and  
4 a cover over the light-emitting device to diffuse the light;  
5 wherein the light emitted from the opening is only visible to a speaker  
6 when the speaker's mouth is within a sensitivity region of a microphone.

1 9. The apparatus recited in claim 8, wherein the sides of the cavity are  
2 sloped.

1 10. The apparatus recited in claim 8, wherein the depth of the cavity and the  
2 size and shape of the opening are designed so that the light emitted from the  
3 opening is only visible when the speaker's mouth is within the sensitivity region.

1 11. The apparatus recited in claim 8, wherein the enclosure is capable of  
2 attaching to the microphone.

1 12. A system, comprising:  
2 a microphone having a sensitivity region; and  
3 a plug capable of coupling to the microphone, the plug having an  
4 enclosure and a light-emitting device inside the enclosure to provide visual  
5 feedback to direct a speaker to stay within the sensitivity region.

1 13. The system as recited in claim 12, wherein the microphone is a  
2 microphone array.

1 14. The system as recited in claim 12, wherein the microphone array uses  
2 time delay estimation to establish the sensitivity region.

1 15. The system as recited in claim 12, further comprising a speech  
2 recognition application using input from the microphone.

1 16. The system as recited in claim 12, further comprising a speaker  
2 verification application using input from the microphone.

1 17. The system as recited in claim 12, further comprising a conferencing  
2 application using input from the microphone.

- 1 18. The system as recited in claim 12, further comprising a telephony  
2 application using input from the microphone.
- 1 19. The system as recited in claim 12, further comprising a tablet coupled to  
2 the microphone.
- 1 20. The system as recited in claim 12, further comprising a computing device  
2 coupled to the microphone.
- 1 21. The system as recited in claim 12, further comprising an appliance  
2 coupled to the microphone, the appliance receiving control input from the  
3 microphone.
- 1 22. The system as recited in claim 12, further comprising, an automobile  
2 application using input from the microphone.
- 1 23. A method, comprising:  
2 providing an enclosure having a bottom, an opening, and a depth;  
3 attaching a light-emitting device to the bottom of the enclosure, wherein  
4 the light-emitting device has a top surface;  
5 calculating an angle theta ( $\theta$ ) so that the light-emitting device is only  
6 visible to a talker when the talker's mouth is within a sensitivity region of a  
7 microphone; and  
8 manufacturing the opening and depth of the enclosure so that the angle  
9 theta ( $\theta$ ) is an angle between the top surface of the light-emitting device and a  
10 projection line drawn from an edge of the opening to an opposite edge of the  
11 light-emitting device.
- 1 24. The method as recited in claim 23,  
2 wherein calculating the angle theta ( $\theta$ ) is performed by calculating  $\theta =$   
3  $\arctan(\beta / \alpha)$ ;

